

**HIGH FREQUENCY HIGH VOLTAGE SILICON-ON-INSULATOR  
DEVICE WITH MASK VARIABLE INVERSION CHANNEL AND  
METHOD FOR FORMING THE SAME**

**Abstract of the Invention**

5 A high frequency high voltage semiconductor device having a shifted doping profile and method for forming the same are provided. Specifically, the present invention provides a semiconductor device (<250V) in which the doping profile is shifted towards the source or body region of the device. The shift in doping profile under the present invention allows both transconductance and capacitance to be optimized so that a SOI device can operate at high frequencies.

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